Reconstruction from Uncalibrated Views" by Hartley in Applications of Invariance in Computer Vision, Mundy Zisserman and Forsyth Eds at pages 237-256, Azores, 1993. Camera position and orientation calculator 40 then performs processing for each respective image to detect the features of the photographic mat in the image, to label the features (that is, to identify a one-to-one correspondence between each feature detected in the image and a feature of the photographic mat defined in the data previously stored at step S4-20), and to use the one-to-one correspondences to calculate the position and orientation at which the image was recorded. More particularly, in this embodiment, the processing to detect and label the features and to calculate the camera position and orientation is performed as described in copending PCT Patent Application GB00/004469 (WO-A-01-39124), "Automatic Reconstruction of 3D Objects Using a Mobile Camera" by Niem in Image and Vision Computing 17 (1999) pages 125-134, "The Lumigraph" by Gortler et al in Computer Graphics Proceedings, Annual Conference Series, 1996 ACM-0-89791-764-4/96/008, or JP-A-9-170914, depending upon the mat pattern selected at step S4-20.

At step S4-38, 3D model data generator 42 in processing apparatus 6 performs processing using the image data

previously stored at step 4-34 and the position and orientation of each image calculated at step S4-36 to generate data defining a computer model of the 3D surface of the subject object and to generate texture data for the surface model. This processing is performed using one of the techniques described in copending PCT Patent Application GB00/00469 (WO-A-01-39124). "Automatic Reconstruction of 3D Objects Using a Mobile Camera" by Niem in Image and Vision Computing 17 (1999) pages 125-134, "The Lumigraph" by Gortler et al in Computer Graphics Proceedings, Annual Conference Series, 1996 ACM-0-89791-764-4/96/008, or JP-A-9-170914.

At step S4-40, view parameter calculator 44 calculates viewing parameters defining how the first image should be generated each time the 3D computer model generated at step S4-38 is viewed.

More particularly, at step S4-40, view parameter calculator 44 generates data defining a perspective camera and data defining the position and orientation of the camera so that the camera looks in a horizontal direction (that is, parallel to the y axis) in the negative y direction at the approximate centre of the object. In this way, the object is substantially centred

in the image and the image shows the part of the subject object arranged to face the front marker 170 on the photographic mat. In addition, in this embodiment, view parameter calculator 44 calculates the viewing parameters to ensure that a bounding sphere for the 3D computer model is visible in the image so that, should the user subsequently rotate the object, it is always within the image view.

In this embodiment, view parameter calculator 44 defines the viewing parameters using OpenGL graphics calls, so that the 3D computer model can be viewed using an OpenGL browser.

More particularly, view parameter calculator 44 defines the viewing parameters as set out below and as illustrated in Figure 7, where the OpenGL graphics calls have a conventional meaning, for example as described in "OpenGL Programming Guide Second Edition: The Official Guide to Learning OpenGL Version 1.1" by Woo, Neider and Davis, Addison-Wesley, ISBN 0201461382.

Inputs:

The bounding box (400 in Figure 7) of the surface polygons making up the 3D computer model of the